EARLY COMMUNICATION INSTALLATION NODE 1

OBJECTIVE:
Installation of Early Communication (Early Comm) System

LOCATION:
Installed: NOD1S4
Stowed: Shuttle Middeck

DURATION:
70 minutes

PARTS:
Early Comm Plate Assemblies and Cables (P/N 684-10276)

MATERIALS:
Tape
Ziploc bags

TOOLS REQUIRED:
35mm Camera
Shuttle Tools:
Locker Drawer #1:
- Multimeter Kit
- Tool Table Cloth (tool caddy)

Locker Drawer #2:
- Connector Pliers

Locker Drawer #3:
- 4” Ratchet Wrench
- 1/4” to 3/8” Adapter
- 6” Extension
- 7/16” Socket
- 5/32” Allen Head
- (30-200 inlb) Trq Wrench 1/4” Drive

SAFE

WARNING

Failure to remove power can result in electrical shock hazard.

1. VERIFY OP RPCs FOR RPCM N1RS1 C

PCS

Node1: EPS: RPCM N1RS1 C

RPCM N1RS1 C

sel RPCM [X] DETAILS [X] = 5 6 12 13

√RPC [X] Position - Op
√RPC [X] Close Cmd - Inh

Repeat

2. VERIFY OP RPCs FOR RPCM N1RS2 A

PCS Node1: EPS: RPCM N1RS2 A

RPCM N1RS2 A

sel RPCM DETAILS [X] = 5 6 10 11

√RPC [X] Position - Op
√RPC [X] Close Cmd - Inh

Repeat

VERIFY POWER OFF RF PWR DIST BOX SWITCHES

NOD1 S4 3. Configure switches located on RF PWR DIST BOX ORU.

√PGSC/RF - Off
√CTP - Off
√XCVR - Off
√SBANT - Off
√PTANT - Off
√SPARE - Off

UNSTOW

4. Obtain Early Comm hardware and tools from stowed location in shuttle. Translate hardware and tools to the Node starboard rack position.

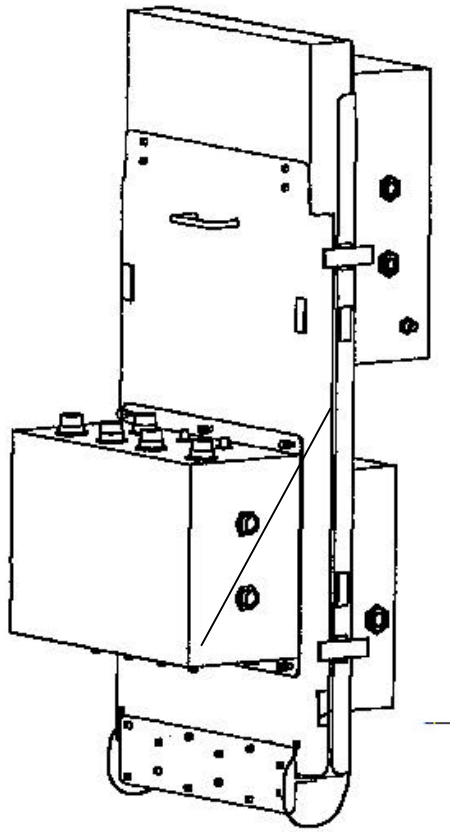

Figure 1.- Early Comm hardware in stowed configuration.

5. Remove top pip pins (two) on Starboard Rack Volume Closeout Panel.

6. Rotate RVC down to deck.

7. Remove lower crossbar pip pin (one) on RVC.

8. Remove RVC.
   Tmpry stow RVC.

9. Remove plate assemblies from Stowage Bag.

10. Release Velcro straps on both sides of plate assemblies (four).
    See Figure 1.

11. Unfold plate assemblies from stowed position.
    Temporary stow packing pallet.

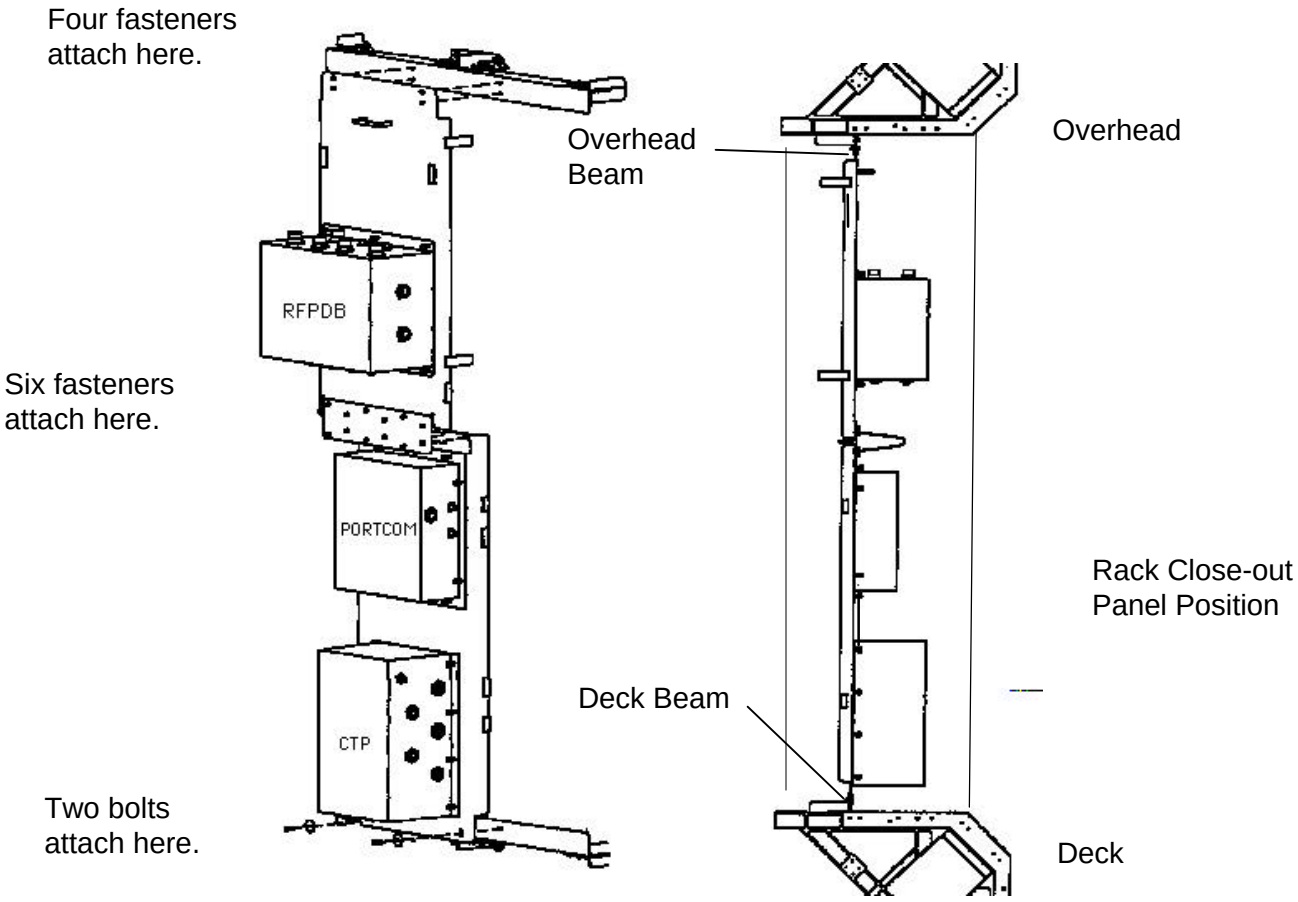

Figure 2.- Exploded and installed side view of Early Comm Assembly.

NOTE
Install bolts and fasteners prior to torquing.

12. Attach RF Power Dist Box (RFPDB) plate to the Transceiver plate, snug fasteners (six) (4” Ratchet Wrench, 1/4” to 3/8” Adapter, 5/32” Allen Head, 6” Extension).
See Figure 2.

INSTALL

13. Attach RFPDB end of plate assembly to Overhead beam. Snug fasteners (four) (4” Ratchet Wrench, 1/4” to 3/8” Adapter, 5/32” Allen Head, 6” Extension).
See Figure 2.

NOTE

The two bolts and two washers used to secure the Transceiver/CTP end of the assembly are stored in a Ziploc on the Transceiver/CTP plate.

14. Remove stowed bolts/washers from Transceiver/CTP plate.

15. Attach Transceiver/CTP end of plate assembly to Deck beam and snug bolts (two) (4” Ratchet Wrench, 7/16” Socket, 6” Extension).
See Figure 2.

16. Torque bolts (two) on Deck beam to 43 inlb (1/4” to 3/8” Adapter, 7/16” Socket, 6” Extension, (30-200 inlb) Trq Wrench).

17. Torque fasteners (ten) in steps 11 and 12 to 43 inlb (1/4” to 3/8” Adapter, 5/32” Allen Head, 6” Extension, (30-200 inlb) Trq Wrench).

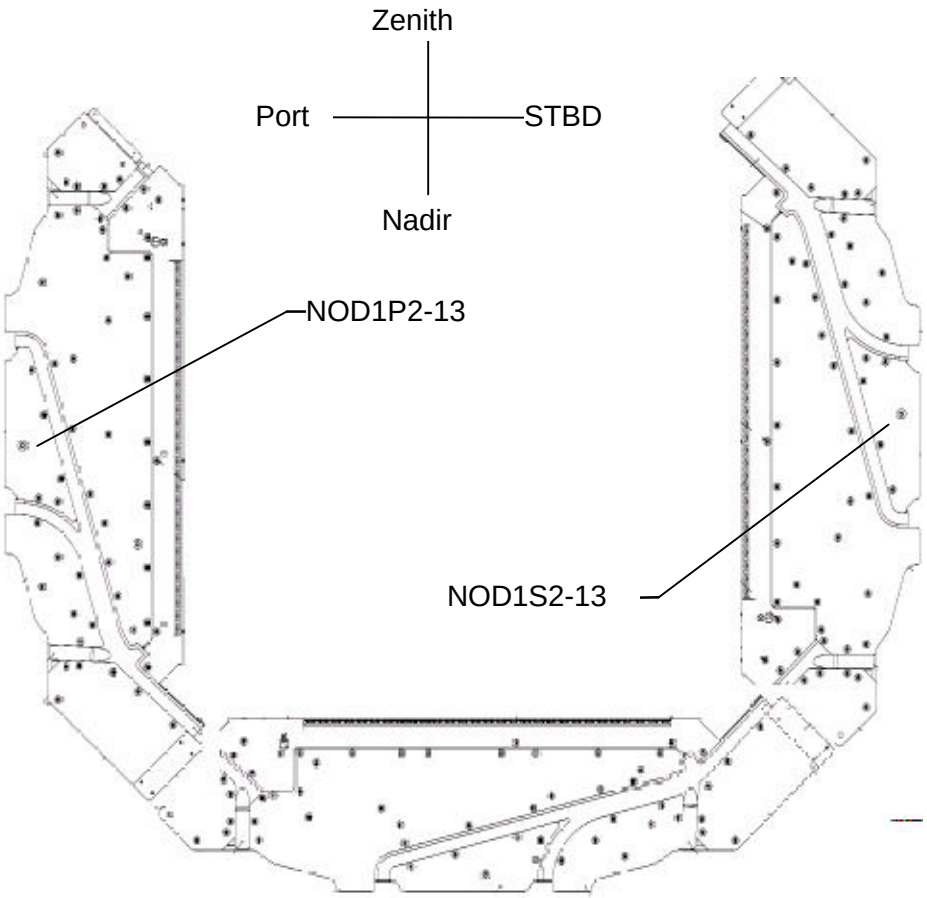

Figure 3.- Hatch Radial Closeout Panels looking FWD.

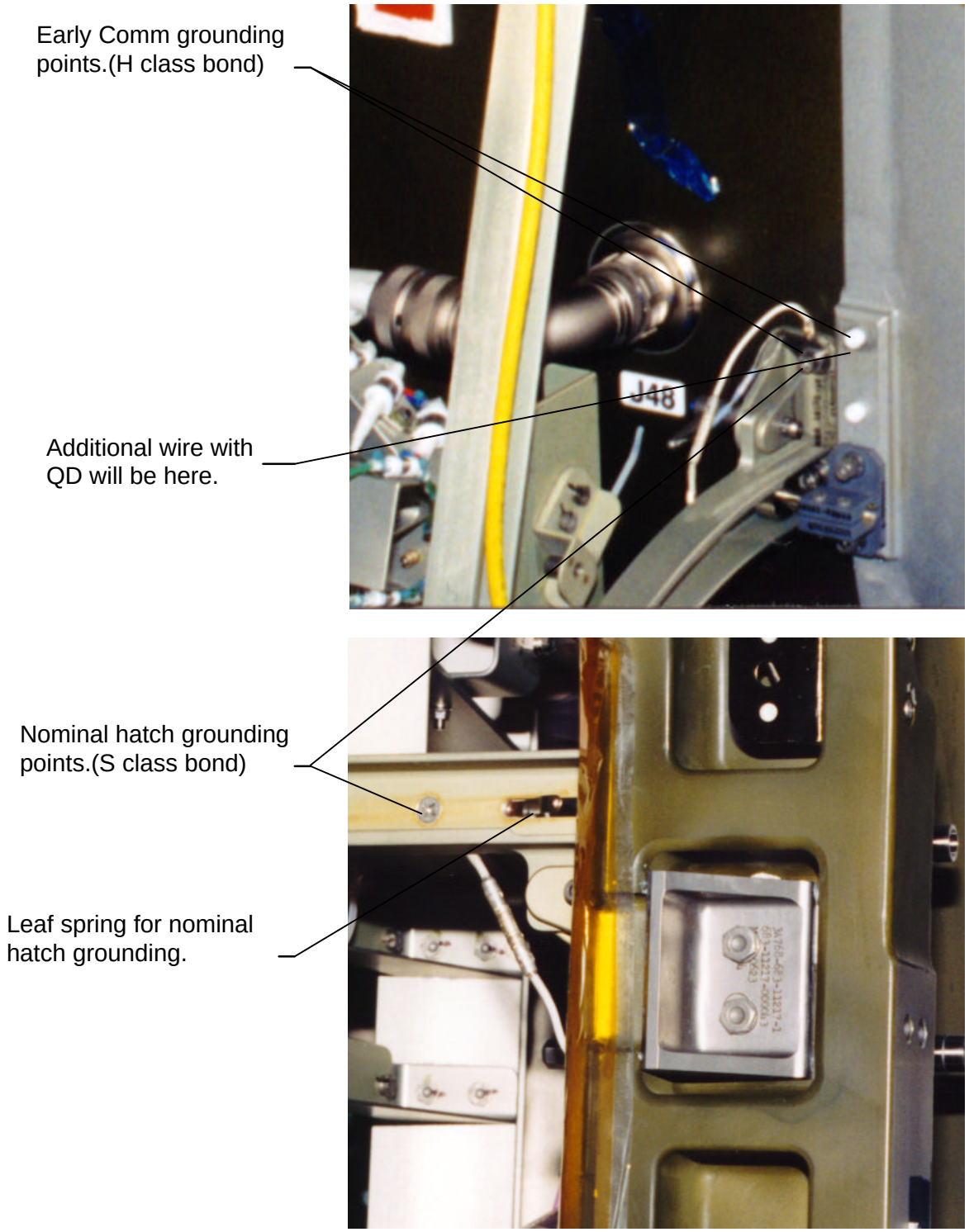

Figure 4.- Hatch Grounding strap.

NOTE

1. Grounding straps are reconfigured to give Hatch an H class bond. This is required because of the feedthrough.

2. Steps 18 --- 21 must be performed on Stbd Hatch. These steps should be completed for Port Hatch during Node closeout on the ground. Refer to figures 3 and 4.

18. √Steps have been completed on Port Hatch.

19. Remove Closeout Panel NOD1P2-13 for port side, if required, and NOD1S2-13 for starboard side to access the grounding strap (four) each (1/4" to 3/8" Adapter, 5/32" Allen Head, 4" Ratchet Wrench).

20. Disconnect hatch track and bulkhead grounding straps at QD.

21. Connect bulkhead and hatch grounding straps at QD.

22. Perform continuity check, between Hatch and bulkhead, with multimeter.

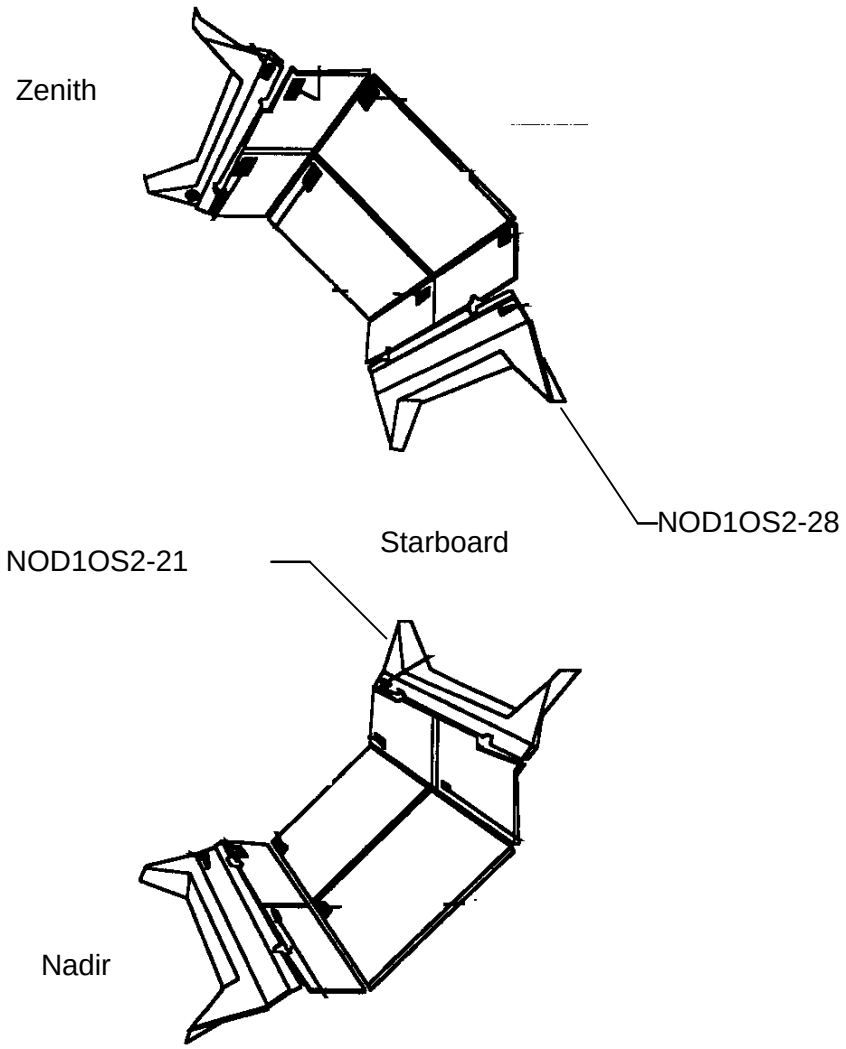

Figure 5.- Closeout Panels above and below Stbd Hatch.

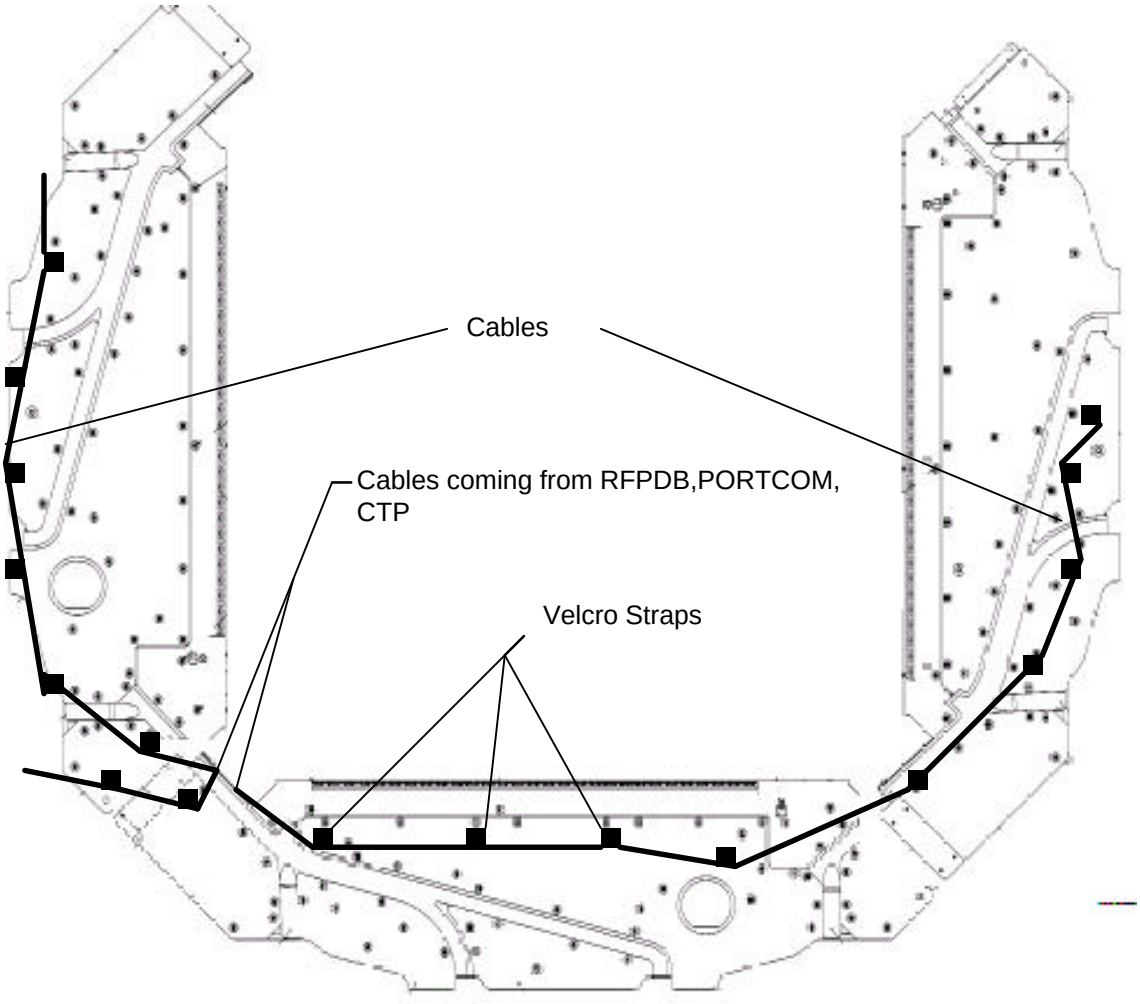

Figure 6.- Hatch Radial Closeout Panels looking AFT.

23. Connect TBD cables between RFPDB and CTP.
    Remove Closeout Panel NOD1OS2-28, NOD1SD2-21 with 5/32" Internal Hex Fasteners (fifteen each) (4" Ratchet, 1/4" to 3/8" Adapter, 5/32" Allen Head).
    See Figures 5 and 6.

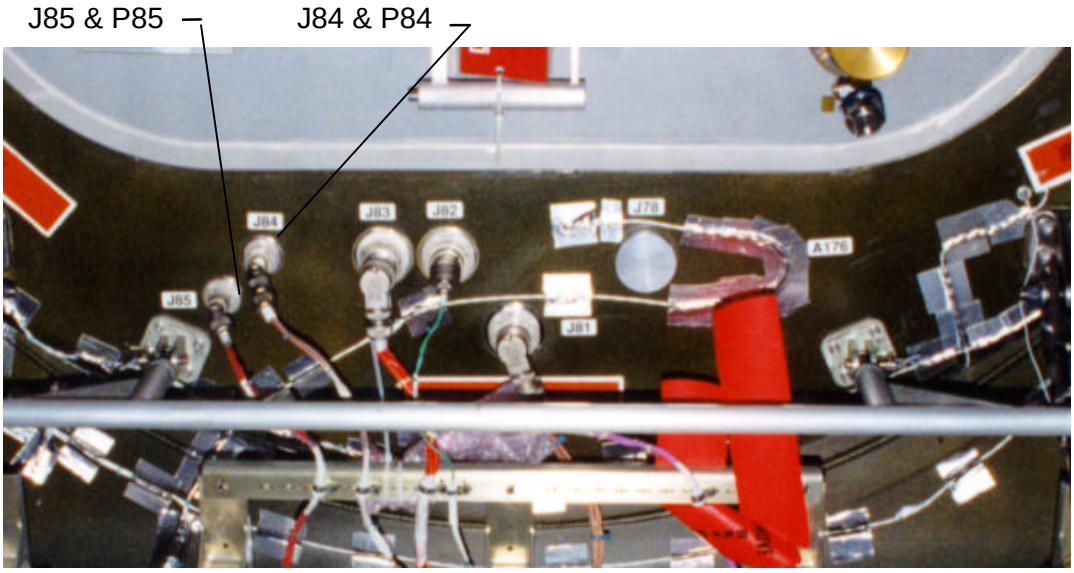

Figure 7.- Stbd Deck Bulkhead.

NOTE
Refer to figure 7 for steps 24 --- 29.

MATE STARBOARD DECK BULKHEAD CONNECTORS

24. W0143 (EO), P85 ←|→ J85

25. Remove cap from Early Comm cable (stowed between Transceiver and CTP) NV85 and install on bulkhead J85.

26. W0143 (EO), P85 →|← NV85, RFPDB1

27. W0205 (RF), P84 ←|→ J84

28. Remove cap from Early Comm cable (stowed between Transceiver and CTP) NV84 and install on bulkhead J84.

29. W0205 (RF), P84 →|← ND84, CTP3

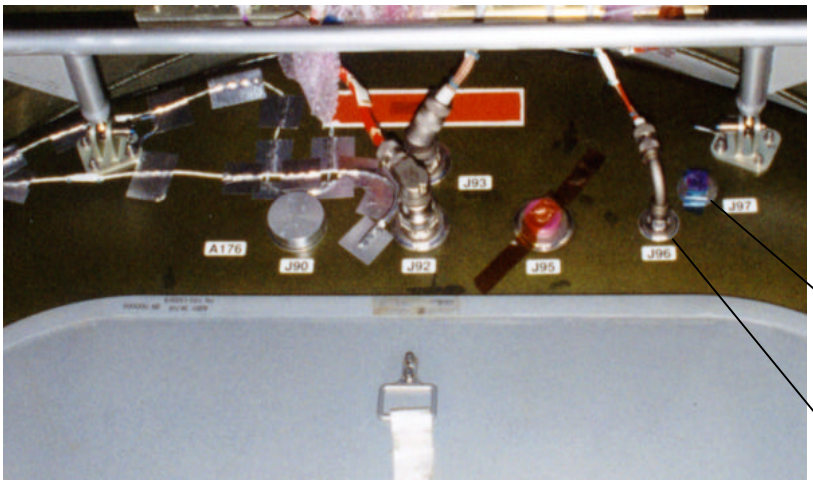

Figure 8.- Starboard Overhead Bulkhead.

NOTE
Refer to figure 8 for steps 30 --- 35.

MATE STARBOARD OVERHEAD BULKHEAD CONNECTORS

30. W0144, P97 ←|→ J97

31. Remove cap from NV97 and install on bulkhead J97.

32. W0144, P97→|← NV97, RPDB2

33. W0204, P96 ←|→ J96

34. Remove Cap from ND96 and install on bulkhead J96.

35. W0204, P96 →|← ND96, CTP4

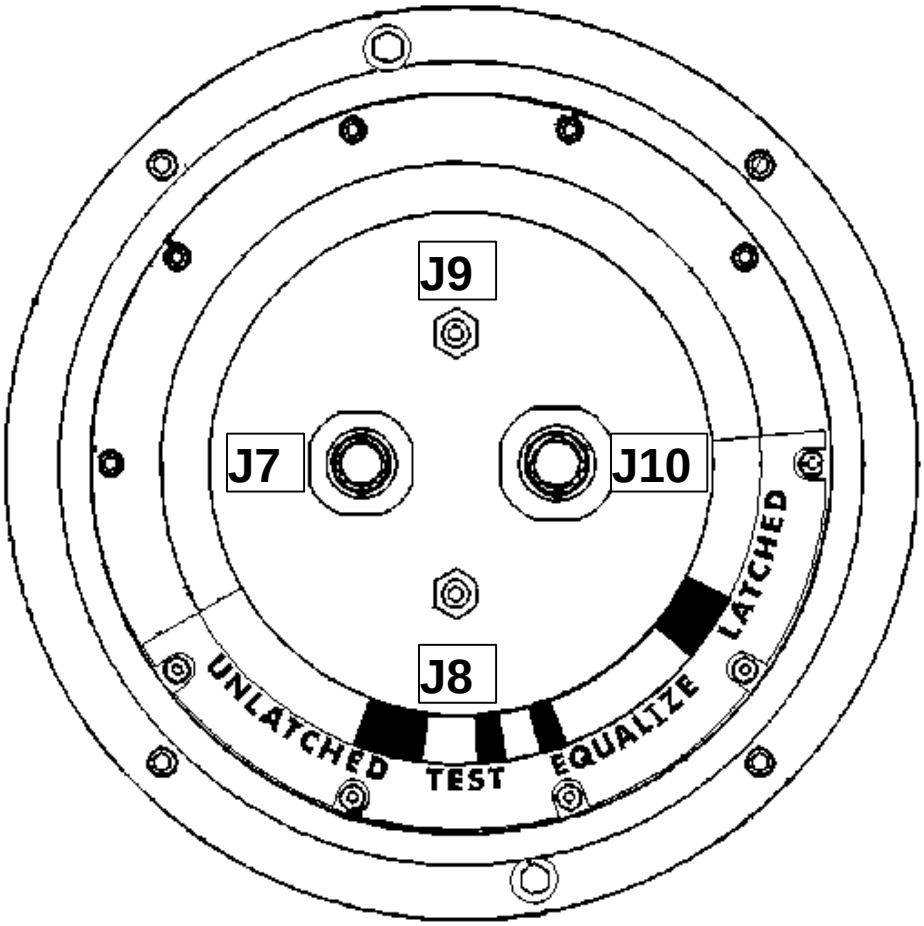

Figure 9.- Port and Starboard Hatch Plate.

MATE PORT HATCH PLATE CONNECTORS

NOTE
Refer to figure 9 for steps 36 --- 43.

36. PHP7/RPDB3, P7 →|← J7

37. PHP10/RPDB16, P10 →|← J10

38. PHP8/RPDB12, P8 →|← J8

39. PHP9/RPDB11, P9 →|← J9

MATE STBD HATCH PLATE CONNECTORS

40. SHP7/RPDB4, P7 →|← J7

41. SHP10/RPDB17, P10 →|← J10

42. SHP8/RPDB14, P8 →|← J8

43. SHP9/RPDB13, P9 → | ← J9

44. Stow connector caps(sixteen) in Ziploc Bag and tape to Early Comm plate assembly.

CLOSEOUT

NOTE
The following steps should be done after initial system checkout is complete.

45. Photo document after inspection.

46. Replace Closeout Panels NOD1OS2-27, NOD1SD2-(22,23) (three) each (4“ Ratchet Wrench, 1/4” to 3/8” Adapter, 5/32” Allen Head).

47. Replace Closeout Panel NOD1P2-13, NOD1S2-13 (four) each (4” Ratchet Wrench, 1/4” to 3/8” Adapter, 5/32” Allen Head).

POST MAINTENANCE

48. Enable RPC Close Cmd for RPCM N1RS1 C.

PCS nav: Node 1: EPS: RPCM N1RS1 C
RPCM N1RS1 C

sel RPCM [X] DETAILS [X] = 5 , 6 , 12 , 13

√RPC [X] Position - Op
cmd RPC [X] Close Cmd - Ena **Execute**
√RPC [X] Close Cmd - Ena

Repeat

49. Enable RPC Close Cmd for RPCM N1RS2 A.

PCS nav: Node 1: EPS: RPCM N1RS2 A
RPCM N1RS2 A

sel RPCM [X] DETAILS [X] = 5 , 6 , 10 , 11

√RPC [X] Position - Op
cmd RPC [X] Close Cmd - Ena **Execute**
√RPC [X] Close Cmd - Ena

Repeat

50. Install Rack Volume Closeout.

TBD 51. Take tools and supplies back to the orbiter and stow.